

ABSTRACT OF THE DISCLOSURE

Disclosed is a method for producing a three-dimensional composite structure and a method for producing the mold for the three-dimensional composite structure. The mold is formed of at least one rigid die member and a second thermoplastic die member. The second thermoplastic die member is formed by coupling a rubber flexible pattern to a surface of the first die member. Vacuum or pressure is applied to a heated thermoplastic sheet to cause the heated thermoplastic sheet to deform about the flexible pattern, thereby forming the second die. Strips of reinforced polymer thermoset pre-preg material are then positioned within the cavities formed by the flexible pattern and are allowed to cure. Optionally, heat, pressure, and vacuum may be applied to the mold construction to facilitate the curing of the thermoset materials.